

JUNE 1958

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THE GOVERNMENT R & D DIGEST

MERCEDES-BENZ "UNIMOG"
MAN GO-ANYWHERE-
ANYTHING TRUCK



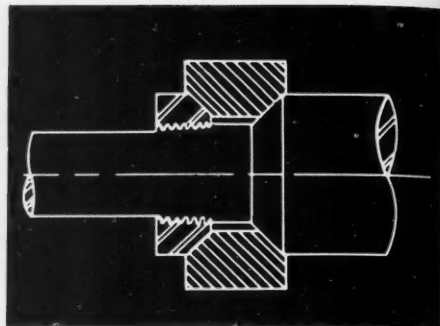
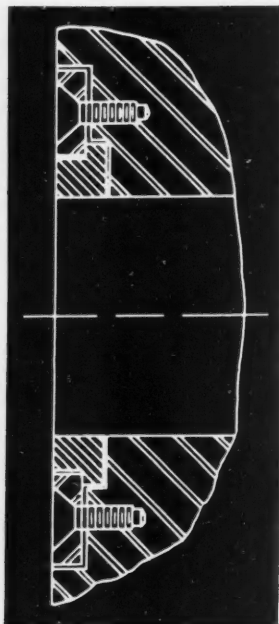
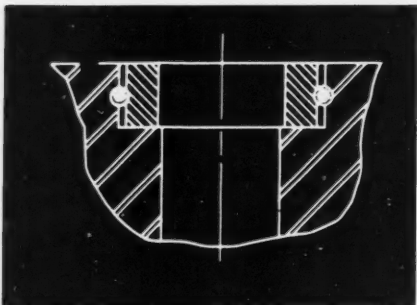
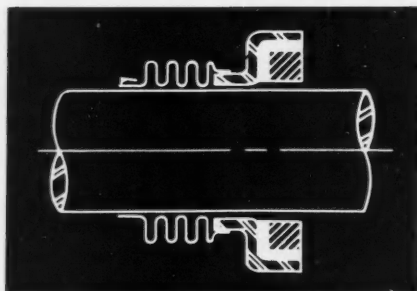
IN THIS ISSUE:

SPECIAL REPORT ON ARDC

AIR FORCE AIR RESEARCH AND DEVELOPMENT COMMAND

HQ., ANDREWS AFB, WASHINGTON 25, D. C.

PERFORMANCE REPORT FROM KENNAMETAL*



**FOR DESIGNERS
WITH A
SEALING RING PROBLEM**

If you have any sealing ring problem that demands . . .

- 1. The ability to resist elevated temperatures, or**
- 2. Unusual resistance to severe corrosion, or**
- 3. Extreme resistance to abrasion.**

KENNAMETAL has some proven answers for you

ELEVATED TEMPERATURES. A jet engine shaft seal of Kentanium,* a titanium carbide, operating without lubrication at 15,000 surface feet per minute under 0.3 to 0.6 lbs. pressure per lineal inch of circumference and 900° to 1000° F, outperformed every other material. Kentanium Rings are stress-free—do not tend to split radially, maintain original face flatness even at high temperatures, and have exceptional wear and resistance strength.

SEVERE CORROSION. Where corrosion and abrasion are present,

Kennametal has seal rings of Grade K501, a platinum-bonded carbide. Used as seals to confine liquid oxygen or fuming nitric acid, sealing results are reported as "far superior to any previously used materials, with no indication of face wear."

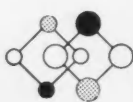
ABRASION RESISTANCE. Kennametal tungsten carbide sealing rings installed in a deep-well rotary pump gave one to two years' service; packing type seals had failed in two to four weeks. Kennametal rings in a recirculating pump, handling water with fine grains of iron oxide, lasted

30 to 60 days. Packing type seals failed in 24 to 48 hours.

Other desirable characteristics of Kennametal seals: high modulus of elasticity, low expansion under heat, high resistance to wear and much lower service cost. For more information, ask for "Characteristics" book. Address your request to: KENNAMETAL INC., Latrobe, Pennsylvania, Dept. DT.

*Kennametal and Kentanium are the trademarks of a series of hard carbide alloys of tungsten, tungsten-titanium and tantalum.

C-1047



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KENNAMETAL**
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magazine

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Number 6

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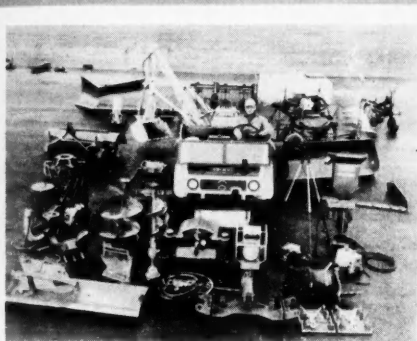
Editor and Publisher: MURRAY QUEEN SMITH

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JUNE 1958



OUR COVER

UNIMOG, a new entry into the military vehicle field, was recently demonstrated at the U. S. Marine Corps Equipment Proving Ground, Quantico, Va., by the manufacturer, Mercedes-Benz of Germany. This is one of five models of the versatile single mobile tractor unit. This particular model can be equipped with the many attachments shown to do a multitude of jobs. Models range from 34 to 155 horsepower and have top cruising speed of 60 mph over rough terrain. UNIMOG is light, yet capable of carrying 1 1/4 ton payloads or pulling 30 times its own weight.

SUBSCRIPTION RATES: U.S. — \$12.00 for 1 year; \$22.00 for 2 years. Foreign — \$15.00 for 1 year; \$28.00 for 2 years. Available to Government personnel through Federal Supply Schedule, FSS Stock Requisition Number 7630-148, Index No. 1256, FSS Section 76, Page 90. Checks may be made payable to DATA.

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DATA PUBLICATIONS

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**A
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SPECIAL MESSAGE TO DATA READERS:

The fundamental objective of the Air Force's research, development and testing effort is to achieve and maintain the qualitative superiority of its weapon systems. The Air Research and Development Command is the unique management tool of the Air Force for directing and coordinating the endeavors of a far-reaching military, scientific and industrial team in this effort.

Today's crisis in time and the growing need for economy in military expenditures as we progress into the space age, pose unprecedented challenges. Mutual understanding, cooperation, and confidence will enable industry, the universities and non-profit organizations, and the military services to achieve their common objectives.

Periodicals like DATA magazine play an important part in disseminating the information which is vital to fostering the operation of this Air Force-Science-Industry team.

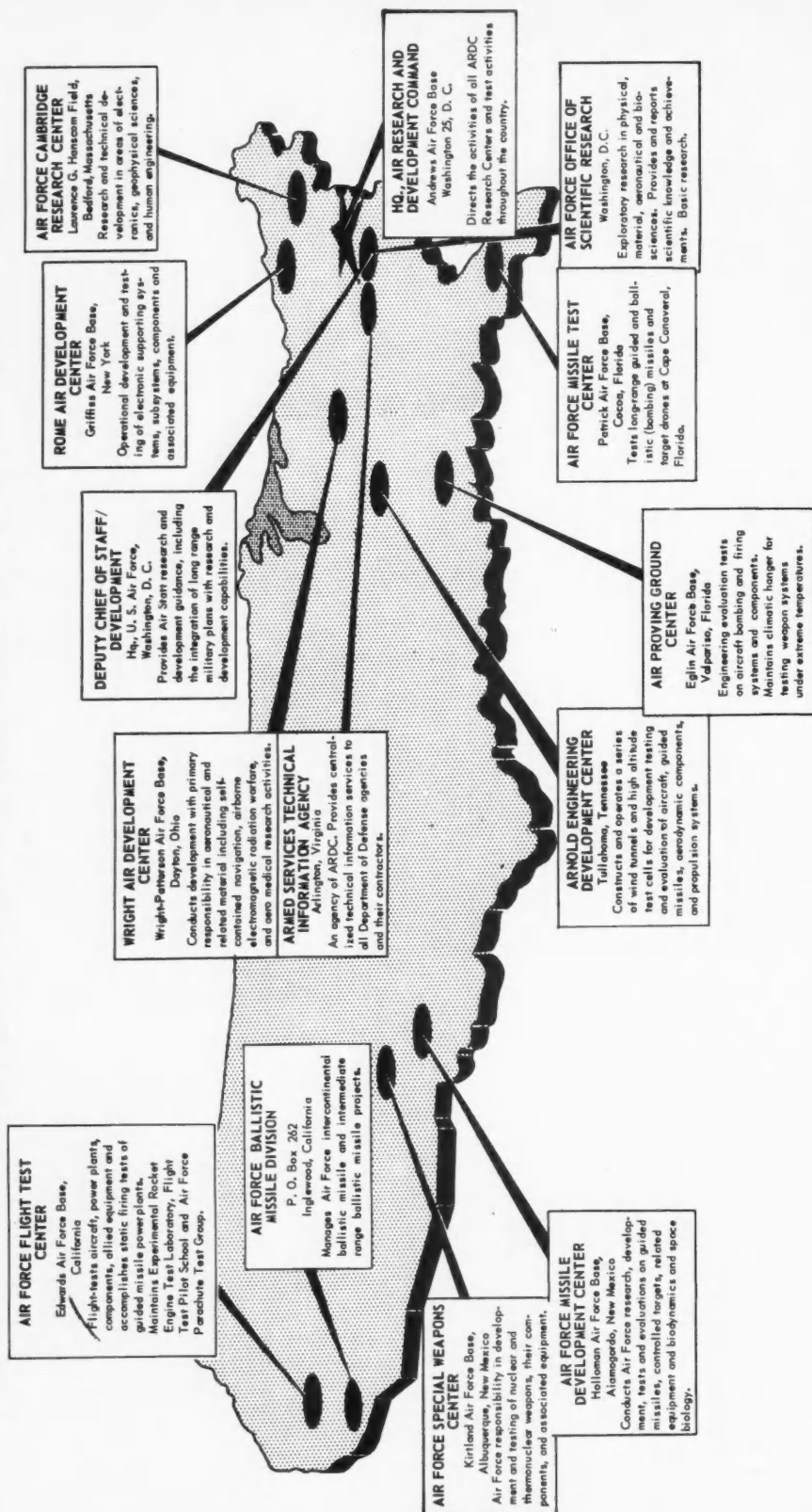
S. E. Anderson
S. E. ANDERSON
Lieutenant General, USAF
Commander

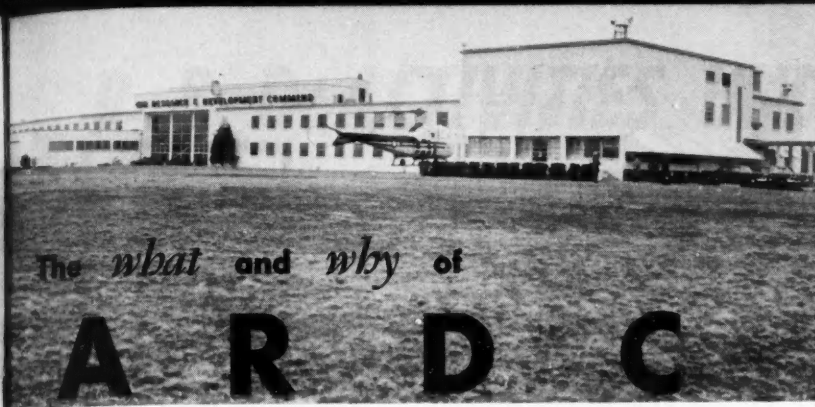
Air Research and Development Command

Lt. General S. E. Anderson, USAF, assumed command of ARDC in August 1957.

Born at Greensboro, N. C., January 6, 1906, he was graduated from West Point and commissioned a second lieutenant in the Coast Artillery Corps on June 9, 1928. He became a pilot in 1929 and served as a flying instructor, the commanding officer of a pursuit squadron, and then began a series of bomber unit commands. During WWII he served with honor in Europe and came back in 1945 to assume duties as Chief of Staff, Continental Air Forces, Bolling Field, Washington, D. C. Upon assuming command of the Fifth Air Force in Korea in 1953 he was promoted to his present rank of lieutenant general. In May 1954 he was assigned as Director, Weapons Systems Evaluation Group OASD (R&D) and held this post until his assignment as Commander ARDC.

MAJOR AIR RESEARCH & DEVELOPMENT ACTIVITIES





The *what* and *why* of

ARDC

Located at Andrews Air Force Base, 15 miles east of Washington, D. C., ARDC was formed on January 23, 1950, when AF decided to consolidate its dispersed R & D activities. Since its inception, ARDC has distributed 3600 R & D contracts totalling \$799 million among 1100 industrial concerns, in addition to another \$314 million worth of contracts to universities, colleges, and other non-profit institutions.

From amount of contract dollars that have been paid out, DATA readers can see ARDC's potential is enormous in scope. Thirty-three main divisions of research, broken down into hundreds of smaller facets, make up areas of interest covered by ARDC. The job of ARDC is big, and it is only through the help of interested industrialists that it is able to perform the tasks that confront it.

ARDC MISSION

ARDC's mission consists of three phases: (1) Attain and maintain qualitative superiority of material and to conduct or supervise scientific and technical studies required for accomplishment of AF missions. (2) Seek new basis knowledge from which improved aeronautical equipment, material, weapons and techniques can be developed. (3) Undertake development and recommend adoption of new and improved devices and systems for conduct and support of air warfare, including complete weapon systems, techniques and procedures applicable to AF purposes. To boil missions down, the job of ARDC is to make certain AF has or will have best possible equipment and material that can be obtained.

Through efforts of science, industry and military, ARDC seeks to develop an entire weapon system, completed on time, in proper quantity, of superior quality, and integrated into an organization trained for its employment. No longer does the concept of considering airframe, armament, power plant, electronics, logistics, training, and support equipment separate items exist. In modern concept these items are considered to be a complete weapon system. In weapon system principle of management, the command utilizes research - development - production cycle, under which all components must be designed, integrated within a limited time period, tested as a whole, and produced at lowest possible cost per weapon. In addition, there must be continuous planning process to design radically new weapons to replace present production weapon systems which future will render obsolete.

Need to Know

ARDC must know what, and how much to produce. To do this, major systems requirements are drawn up, based on analysis of available intelligence, needs of operational Commands, state-of-the-art, and time and resources available to AF. Headquarters USAF, through the Deputy Chief of Staff for Development, provides policy guidance and initiates directives for new systems needed to meet military requirements.

Once ARDC gets the go ahead on a new weapon system, or another project concerning procurement, they turn to industry for assistance. Here is where you the DATA reader, fit into the plan of ARDC.

SMALLER, LIGHTER and MORE RELIABLE



The new Diaphlex Militol switch weighs 2.5 ounces and measures less than 1.2 cubic inches. It operates in the critical 100 to 350 PSI range either pneumatically or hydraulically. Manufactured to exceed MIL-E-5172. Pressure switches which employ the sensing element ideal for the particular application and parameter, are custom engineered by Diaphlex and manufactured to MIL specifications.



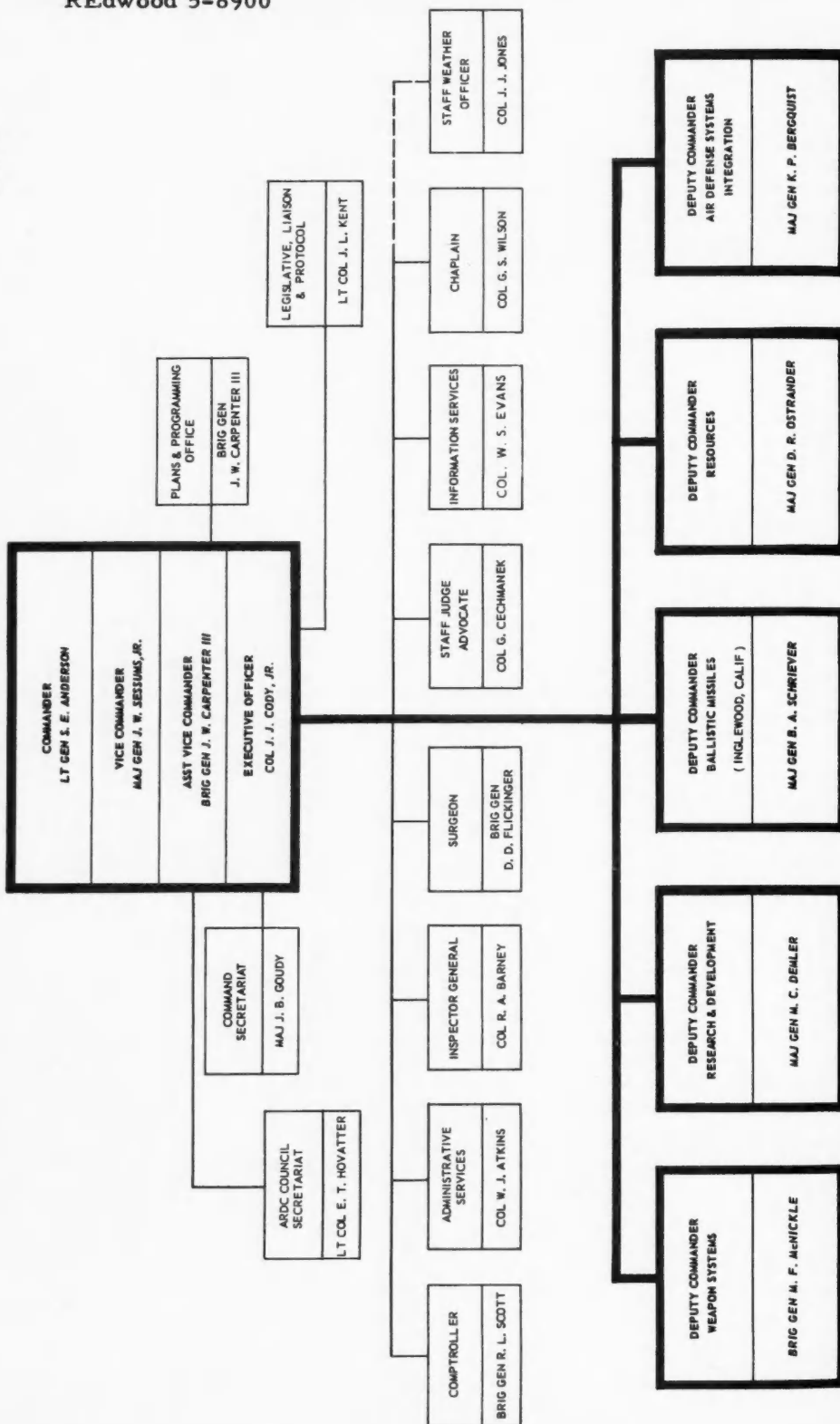
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1 JUNE 58

HEADQUARTERS AIR RESEARCH & DEVELOPMENT COMMAND



R & D ACTIVITIES UNDER ARDC

Wright Air Development Center, Wright-Patterson AFB, Ohio

One of world's most extensive and completely equipped facilities devoted to aeronautical development, conducts a four-phase program of research, development, test, and evaluation. Categories which fall under Wright facility include aeronautical and related material, propulsion, aerodynamics, applied human factors, self-contained navigation, guidance, reconnaissance, bombing-fire control, airborne electromagnetic radiation warfare, and aeronautical accessories.

Rome Air Development Center, Griffiss Air Force Base, New York

Is responsible for accomplishing operational development and testing of electronic supporting systems, systems, components, and associated equipment, and provides related engineering and procurement data support to Air Materiel Command. RADC also provides and operates Verona Test site, an electronic counter measure (ECM) test facility.

Air Force Missile Development Center, Holloman AFB, New Mexico

Conducts R & D of assigned guided missile subsystems and components, and in biodynamics and space biology. AFMDC tests and evaluates missile weapon systems, controlled targets, drones, and operational techniques and associated equipment related to these systems; and provides test support to AF research program in guided missiles, electronics, geophysics, physiology, biophysics, and psychology.

Arnold Engineering Development Center, Tullahoma, Tennessee

Plans, constructs and operates series of wind tunnels and high altitude test cells for development testing and evaluation of aircraft, guided missiles and air-breathing propulsion systems. This work is performed for all Armed Services, their industry contractors and educational or research institutions.

Air Force Cambridge Research Center, L. G. Hanscom Field, Bedford, Massachusetts

Is responsible for conducting research and technical development required to further electronic art in all areas of electronics related to AF mission, and to perform operational development for specific equipment or systems. AFCRC is responsible for research and development in geophysical sciences and in areas of human engineering to meet AF requirements concerned with auditory presentation of information processing by a human operator. AFCRC provides technical and contractual administration and USAF support of Massachusetts Institute of Technology, Lincoln Laboratory at L. G. Hanscom Field.

Air Force Flight Test Center, Edwards Air Force Base, California

Flight-tests aircraft, power plants, components, and allied equipment; accomplishes static firing tests of guided missile power plants; and conducts research and development on testing procedures. Center also maintains Experimental Rocket Engine Test Laboratory, USAF Experimental Flight Test Pilot School and track testing facilities at Edwards, and USAF Parachute Test Group, El Centro, California.

Air Force Missile Test Center, Patrick Air Force Base, Florida

Is responsible for establishment, maintenance and operation of Florida Missile Test Range. AFMTC tests long-range guided and ballistic missiles and target drones over its more than 5,000 miles of proving grounds stretching from Cape Canaveral, Florida, to Ascension Island. This center also accomplishes R & D on testing procedures, of guided missiles.

Air Proving Ground Center, Eglin Air Force Base, Florida

Has responsibility for performing engineering evaluation tests on aircraft bombing and firing systems and their components, including guns, bombs, and rockets.

Air Force Special Weapons Center, Kirtland Air Force Base, New Mexico

Carries out AF's responsibilities in development and testing of nuclear and thermonuclear weapons, their components, and associated equipment. Center evaluates personnel hazards associated with testing of atomic weapons, and also provides support to AEC and other government agencies conducting continental and overseas weapons tests.

Air Force Office of Scientific Research, Washington, D. C.

Conducts an exploratory research program in physical, material, aeronautical and biosciences through contractual arrangements with profit and non-profit institutions and universities. Purpose of AFOSR program is to provide new scientific knowledge, and to recognize and report scientific achievement, application of which may result in significant new concepts of warfare or weapons.

Armed Services Technical Information Agency, Arlington Hall, Virginia

Provides centralized technical information services to all DOD agencies and their contractors. ASTIA is responsible for collecting and cataloging R & D information and disseminating it on a "need-to-know" basis.

Aircraft Nuclear Propulsion Office, Germantown, Maryland

Is responsible for exercising executive management of all current and future nuclear propulsion systems.

Air Force Ballistic Division, Headquarters, ARDC, Inglewood, California

Is responsible for managing USAF intercontinental ballistic missiles and intermediate range ballistic missile projects.

In addition to these research, development, and test activities, ARDC operates twenty-two domestic field offices to provide technical liaison with industry and other military services. An office in Brussels, Belgium, monitors research throughout Western Europe, and Near East.

A R D C

PROCUREMENT OFFICERS

June 1951

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AEDC	Mr. James F. Fuqua	AEK	M/Sgt. C. H. Burnes	AEKS	M/Sgt. C. H. Burnes AEKB	GL-5-2611 Ext-272
					Mr. H. F. Siegeland	REctor 2-8000 Ext-440-441

Chief, ARDC, New York Small Business Office,
364 Broadway, New York 13, New York

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HOW TO DO BUSINESS WITH ARDC

DATA's Government contractor readers should have no trouble doing business with ARDC. Never before has information on advanced operational technical requirements of the Air Force been so easy to obtain.

The "TPPD" Release Program, (Technical Program Planning Document Release Program), recently initiated by the Air Research and Development Command is designed to inform Science and Industry of the technical goals and requirements of the Air Force.

Prior to the beginning of the TPPD Release Program, information on future military requirements was generally not available to agencies outside of the Government. Thus technical endeavors, intended for submission to the Air Force by non-governmental organizations, had to be based upon intelligent guesswork. This guesswork resulted in a good deal of calculated risk since if the technical advance submitted by the agency would not fit into future USAF technical programs, all or a portion of the resources expended by the organizations went down the drain. Neither the Scientific and Industrial Agencies, nor the Government, and above all, the Nation's security can afford this waste of scientific and industrial potential for new techniques that it is possible to incorporate into a defense program.

Therefore, ARDC established the revolutionary TPPD Release Program in order to help eliminate the waste of technical resources resulting from the lack of information available to industry and science about Air Force future requirements.

Unfortunately, although the TPPD Release Program was designed for and made available to all Scientific and Industrial agencies, many organizations have not taken advantage of the program. Also, some agencies, after having been furnished necessary information, indexes, etc., necessary for requesting TPPD's, have not followed through to obtain them.

Any Scientific or Industrial organization interested in receiving information on future technical goals and requirements of the Air Force, and who desire to do R&D work of ARDC interest on their own initiative, should write to: Commander, Air Research and Development Command, ATTN: RDTDDP, Andrews AFB, Washington 25, D. C. and request participation in the TPPD Release Program. (All organizations desiring TPPD's are requested to complete and return to Hq ARDC, via their cognizant military agency, the Security Register, ARDC HQ Form 0398 before TPPD's will be released.)

On the next few pages DATA presents readers with the most recent major listing of available TPPD's.

INDEX OF FY 58 TECHNICAL PROGRAM PLANNING DOCUMENTS (FY 59) PLANNING DOCUMENTS)
Revision of the Technical Program

<u>NO. OF COPIES</u>	<u>AREA NUMBER</u>	<u>TITLE</u>	<u>SECURITY CLASSIFICATION</u>	<u>SCOPE OF COVERAGE</u>
_____	750A(A)	AERONAUTICS	SECRET	<ol style="list-style-type: none"> 1. Aeronautics 2. Air Vehicle Environmental Protection 3. Air Vehicle Escape Devices <p>(This TPPD consists of a review of the Aeronautics state-of-the-art, technical possibilities, and requirements in the following areas: Aerodynamics; structural capabilities, limitations, and problem areas; flight operating techniques, methods used to overcome present performance deficiencies; launching and aligning gear problems and techniques; air vehicle environmental protection--icing, temperature, vibration, etc.; and crew escape at high speeds and/or high altitudes.)</p>
_____	760B(C)	AIRCRAFT CONTROL AND WARNING	SECRET	<ol style="list-style-type: none"> 1. Airspace surveillance 2. Identification 3. Threat Evaluation and Tactical Control
_____	750F(A)	AIRCRAFT SECONDARY POWER	SECRET	<ol style="list-style-type: none"> 1. The power required to operate installed equipment and airframe components in air vehicles.
_____	760A(C)	AIR TRAFFIC CONTROL	CONFIDENTIAL	<ol style="list-style-type: none"> 1. Approach and Landing 2. Traffic Control and Scheduling

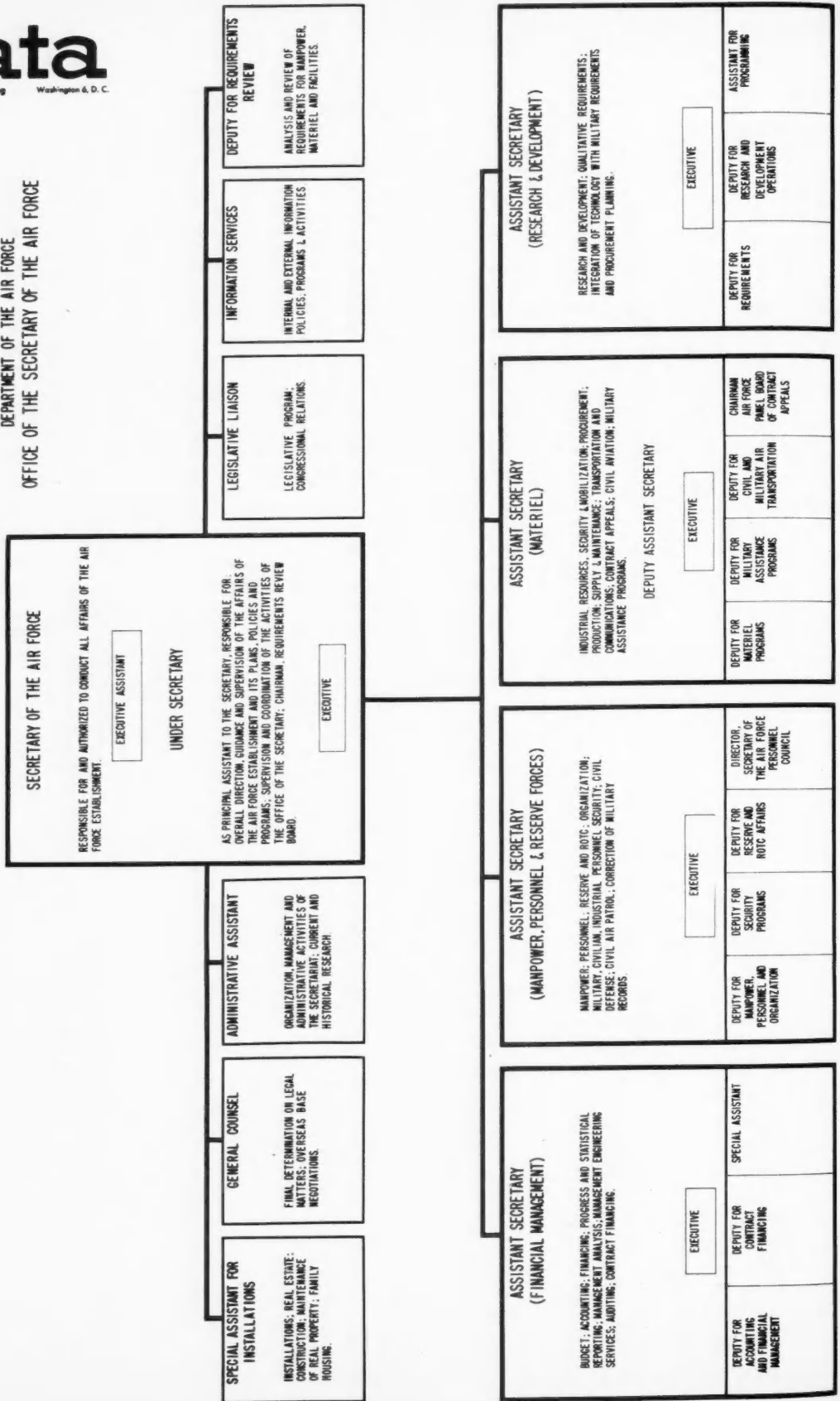
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_____	740A(W)	AIR WEAPONS (NON-NUCLEAR)	SECRET	1. Aircraft Weapons 2. Exterior Ballistics 3. Warheads and Terminal Effects
_____	770A(A)	ATMOSPHERIC PHYSICS	SECRET	1. Weather Modification 2. Meteoric Vulnerability 3. Solar Radiation and Cosmic Effects 4. Extra - Atmospheric Effects on Flight
_____	770C(A)	BALLOONS	SECRET	1. High Altitude Balloon Vehicles
_____	730H(W)	BOMBER DEFENSE	SECRET	1. Active and Passive Defense Systems and Techniques
_____	730A(W)	BOMBING	SECRET	1. Strategic Bombing 2. Tactical Bombing 3. Fighter Bombing
_____	760C(C)	COMMUNICATIONS	SECRET	1. Short-Range Communications 2. Long-Range Communications 3. Specialized Communications
_____	720F(A)	DECELERATION DEVICES	SECRET	1. Landing, Deceleration, and In-Flight Control 2. Recovery of Guided Missiles, Aerial Targets and Very High Altitude Research Vehicles 3. Personnel Parachutes 4. Aerial Cargo Dropping
_____	760D(C)	ELECTRONIC COUNTERMEASURES	SECRET	1. Ferret Reconnaissance Collection and Data Handling 2. Electronic Countermeasures
_____	760E(C)	ELECTRONIC TECHNIQUES	SECRET	1. Radomes 2. Electronic Testing Equipment 3. Electronic Tubes and Components

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_____	760G(C)	ELECTRONIC VULNERABILITY REDUCTION	SECRET	1. Anti-Jamming Techniques
_____	730F(W)	FIGHTER FIRE CONTROL	SECRET	1. Air-to-Air Fire Control 2. Air-to-Ground Fire Control 3. Interceptor Fire Control
_____	730E(W)	FLIGHT CONTROL	SECRET	1. Aircraft Flight Control 2. Guided Missile Flight Control 3. Flight Data Sensing and Presentation
_____	720B(A)	GROUND SUPPORT	SECRET	1. This documents covers the area of System Support, i.e., maintenance, servicing, ground support power and ground cargo handling as well as Airbase Support, i.e., facilities, utility services, vehicles, fire protection, and crash rescue.
_____	780E(H)	HUMAN ENGINEERING	UNCLASSIFIED	1. Operator Requirements for Proposed Systems 2. Design, Arrangement and Operating Characteristics of Controls for Human Use 3. Human Engineering of Equipment for Maintenance Efficiency 4. Presentation and Processing of Information 5. Human Factors in the Design and Handling of Special Weapons
_____	780J(H)	HUMAN INTELLIGENCE METHODS	SECRET	1. Human Factors in the Collection and Evaluation of Military Intelligence 2. Human Effects of Air Force Operational Capabilities upon Enemy Response 3. Techniques of Social Analysis and Human Source Intelligence Exploitation (Calls for work by demographers, sociologists, psychologists and others in the area of social analysis and human source intelligence).

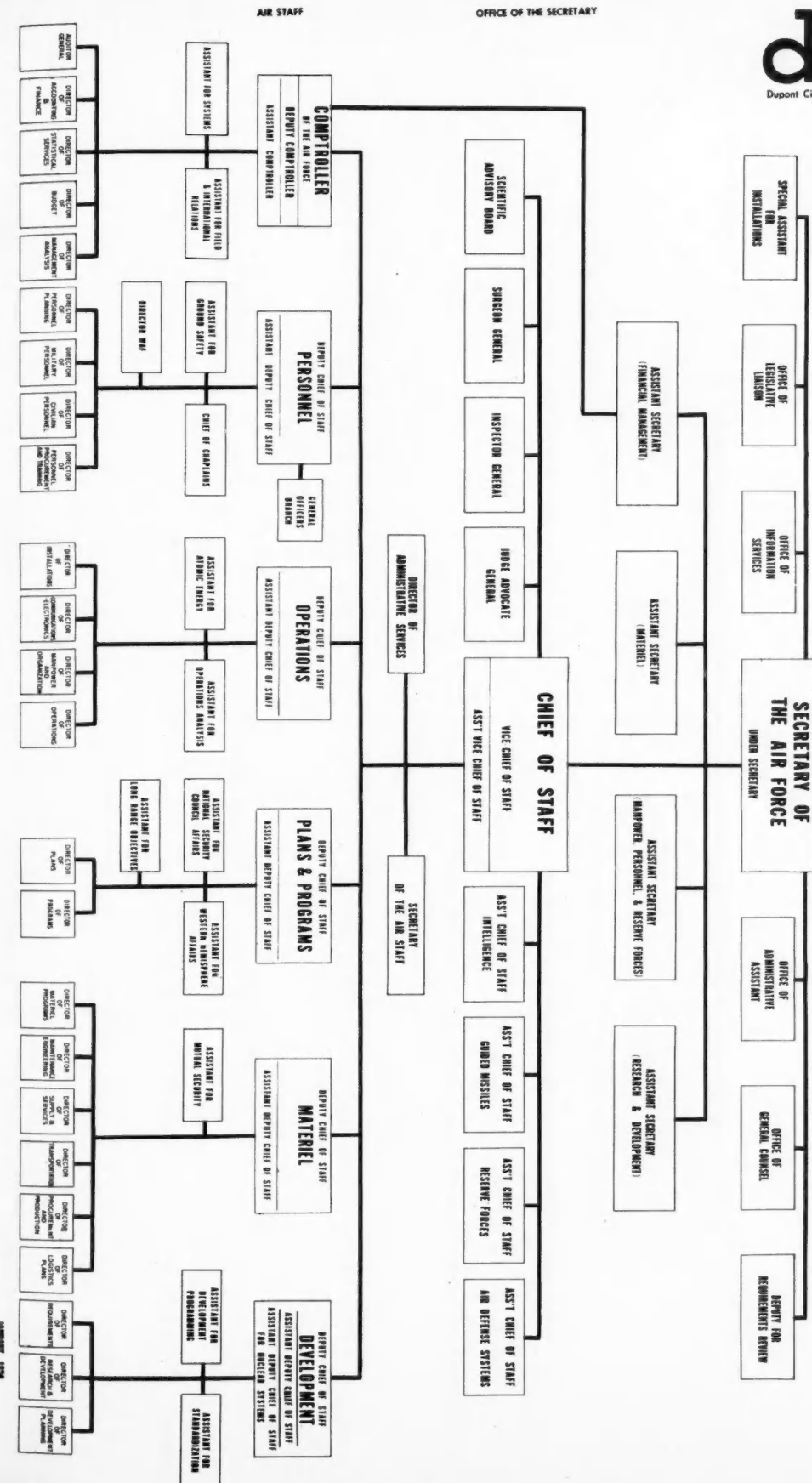
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			SECRET	UNCLASSIFIED	
_____	760H(C)	INTELLIGENCE	SECRET		1. Machine Data Translation and Processing 2. Machine Process Programming 3. Data Interpretation and Prediction Techniques
_____	730J(C)	LOGICAL MACHINERY	UNCLASSIFIED		1. Automatic Data Processing Techniques and Equipments for Military and Scientific Problem Solving
_____	720H(A)	MATERIALS	SECRET		1. Airframe Materials 2. Engine Materials 3. Miscellaneous Aeronautical Materials 4. Materials Application and Methods Research
_____	770B(A)	METEOROLOGY	SECRET		1. Weather Data Collection 2. Weather Data Processing 3. Weather Analyses and Forecasting
_____	730D(W)	MISSILE GUIDANCE	SECRET		1. Tactical Missile Guidance 2. Strategic Missile Guidance 3. Air Defense Missile Guidance
_____	710C(W)	MUNITIONS HANDLING	SECRET		1. Nuclear Weapon Storage, Transport and Handling
_____	730C(W)	NAVIGATION	SECRET		1. Bombing Navigation 2. Tanker Navigation 3. Fighter Navigation 4. Interceptor Navigation 5. Troop Carrier Navigation 6. Cargo Navigation 7. Helicopter Navigation
_____	780G(H)	PERSONNEL AND TRAINING	UNCLASSIFIED		1. Determining Air Force Personnel Requirements 2. Selecting & Classifying AF Personnel 3. Operator Performance & Utilization 4. Maintenance Pers Performance & Utilization 5. Training Devices, Simulators, & Equipment 6. Evaluating Performance of AF Personnel

<u>NO. OF COPIES</u>	<u>AREA NUMBER</u>	<u>TITLE</u>	<u>SECURITY CLASSIFICATION</u>	<u>SCOPE OF COVERAGE</u>
_____	720A (C)	PHOTOGRAPHY	SECRET	<ol style="list-style-type: none"> 1. Collection 2. Reduction 3. Analysis 4. Dissemination
_____	750E (A)	PROPULSION	SECRET	<ol style="list-style-type: none"> 1. Primary Propulsion for Atmospheric and Space Vehicles including Engines, Fuels and Essential Items of equipment required for Satisfactory Operation.
_____	780A (H)	PROTECTION OF PERSONNEL Part A - Protection Against Environmental Hazards	SECRET	<ol style="list-style-type: none"> 1. Airborne Environmental Protection and Maintenance of Personnel (Except for Integral Aircraft Escape Devices) Protection of AF Personnel against hazards such as low ambient pressure, hypoxia, g-force, biological effects of the upper atmosphere, temperature extremes, abrupt deceleration, visual problems of high performance aircraft, food and rest, and emergency escape from high performance aircraft. 2. Ground Environmental Protection and Maintenance of Personnel. Protection against biological, physical, psychological and climatic extremes to which AF personnel are exposed.
_____	780A (H)	PROTECTION OF PERSONNEL Part B - Air Force Noise and Vibration Control	UNCLASSIFIED	<ol style="list-style-type: none"> 1. Control of Acoustic Energy in the AF. 2. Protection of Receivers Against the Effects of Acoustic Energy. 3. Control of Acoustic Energy at its Source. 4. Effects of Acoustic Energy on Transmitting Material.

DEPARTMENT OF THE AIR FORCE
OFFICE OF THE SECRETARY OF THE AIR FORCE



DEPARTMENT OF THE AIR FORCE



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Development and justification of budget estimates. Development, substantiation and management of financial plans and procedures. Establishment and administration of budgetary plans and policy.

SYSTEMS AND PROCEDURES GROUP
Plans, designs, and develops long range budget systems. Develops procedures for implementation of such systems. Develops policies and procedures for the development and improvement of current budgetary operations Air Force-wide. Negotiates and communicates interdepartmental agreements at local, intermediate, and Air Force levels. Coordinates and oversees the development of joint service cross-service and joint-service agreements within the Department of Defense and represents the Comptroller and Assistant Comptroller of the Air Force. Coordinates and oversees the development of joint service cross-service and joint-service agreements within the Department of Defense and represents the Comptroller and Assistant Comptroller of the Air Force. Plans, advises, and collaborates with responsible staff agencies on the development of budgetary systems, procedures, and utilization of personnel assigned budget duties Air Force-wide. Acts as adjudicating authority on property of fund utilization and provides budgetary advice, technical assistance and guidance to all Air Force agencies.
BRANCHES AGREEMENTS AND PROCEDURES SYSTEMS SPECIAL PROJECTS

PLANS AND REVIEW GROUP
Develops plans and policies and monitors the development of programs leading to long range budget estimates and financial plans. Develops, reviews and submits estimates of budgetary requirements by fiscal year for specific time periods, associated with the program, program arguments, based upon detailed or summary program data. Develops and monitors presentations to higher authority on budget estimates. Develops and monitors presentations to higher authority on budget estimates. Reviews and recommends on proposed legislation and Executive Orders. Reviews the end-product of budget estimates and monitors the operation of budgetary systems and procedures by the Secretary of the Air Force, to higher reviewing authorities.
BRANCHES PLANS AND PROGRAMS REVIEW

FINANCIAL ANALYSIS GROUP
Prepares and presents special financial studies to higher authority. Develops and analyzes summary financial data and advises on the correction of problem areas. Reviews and recommends on budgetary requests, including prescribing format and required back-up material. Maintains master control on fund availability and status reporting.
BRANCHES FINANCIAL ANALYSIS PRESENTATIONS SPECIAL OPERATIONS

PROCUREMENT AND RESEARCH DIVISION
For the Aircraft and Related Procurement, Procurement Office, and Research and Development. Develops, reviews, analyzes and assists in the presentation and substantiation of budget estimates before review authorities. Develops, reviews, analyzes and assists in the presentation and substantiation of budget estimates before review authorities. Administers funds in accordance with Public Law, policies and procedures of the Air Force and higher authority, and approved Air Force programs. Provides budgetary advice and guidance to all Air Force agencies.
BRANCHES AIRCRAFT MILITARY PERSONNEL RESEARCH AND DEVELOPMENT

OPERATION AND MAINTENANCE DIVISION
For the Operation and Maintenance Appropriation. Develops, reviews, analyzes and assists in the presentation and substantiation of budget estimates before review authorities. Develops, reviews, analyzes and assists in the presentation and substantiation of budget estimates before review authorities. Administers funds in accordance with Public Law, policies and procedures of the Air Force and higher authority, and approved Air Force programs. Provides budgetary advice and guidance to all Air Force agencies.
BRANCHES LOGISTICAL SUPPORT OPERATION AND MAINTENANCE SERVICE WIDE SUPPORT

MILITARY PERSONNEL AND CONSTRUCTION DIVISION
For the Military Personnel, Reserve Personnel, Air National Guard, Retired Pay, Claims, and Military Construction Appropriation. Develops, reviews, analyzes and assists in the presentation and substantiation of budget estimates before review authorities. Develops, reviews, analyzes financial plans, monitors and assists in the presentation and substantiation of financial plans and appropriation requests. Administers funds in accordance with Public Law, policies and procedures of the Air Force and higher authority, and approved Air Force programs. Provides budgetary advice and guidance to all Air Force agencies.
BRANCHES MILITARY PERSONNEL RESERVE PERSONNEL CONSTRUCTION

SPECIAL FUNDS DIVISION
For Management, Industrial, and Stock Funds. Develops, reviews, analyzes, and assists in the presentation and substantiation of budget estimates before review authorities. Develops, reviews, analyzes and assists in the presentation and substantiation of financial plans and appropriation requests. Administers funds in accordance with Public Law, policies and procedures of the Air Force and higher authority, and approved Air Force programs. Provides budgetary advice and guidance to all Air Force agencies.
BRANCHES MANAGEMENT AND INDUSTRIAL STOCK FUNDS

**13H
DIRECTOR OF
PROCUREMENT AND
PRODUCTION**

DIRECTOR OF PROCUREMENT AND PRODUCTION

PROCUREMENT POLICY SMALL BUSINESS AFFAIRS
PROCUREMENT DIRECTION INDUSTRIAL RESOURCES
MATERIAL SYSTEMS PHASING
AIRCRAFT AND EQUIPMENT PRODUCTION

OFFICE OF SMALL BUSINESS

Formulates policy, establishes program, and exercises staff supervision over DAF activities concerning small business.

PROCUREMENT POLICY DIVISION

Formulates and provides staff supervision over Air Force procurement policies and procedures. This covers areas such as: contract financing, pricing, termination, settlement and fraud matters, labor law compliance; administration and use of government property. Participates in development of DOD procurement policy in preparation of DOD Services Procurement Regulation (ASPR) and DOD procedures. Provides staff supervision over ASPR compliance. Serves as Director's focal point for congressional and Secretariat inquiries.

BRANCHES

CONTRACT METHODS
CONTRACT ADMINISTRATION
PROJECTS

INDUSTRIAL RESOURCES DIVISION

Exercises staff supervision over, develops policy and furnishes guidance on matters relating to industrial facilities, production equipment, materials and real property for industrial use. Provides membership on the Aircraft Production Coordination Office. Prepares procurement directives for the acquisition and maintenance of industrial facilities and related equipment. Provides monitoring, guidance, and control over budgetary requirements relating to industrial equipment and facilities programs.

BRANCHES

INDUSTRIAL EQUIPMENT
FACILITIES
MATERIALS

WEAPON SYSTEMS DIVISION

Exercises staff surveillance over the procurement and production of weapons systems, facilities, materiel, and related equipment. Serves as a focal point in DCS Materiel for all matters pertaining to production of aircraft and missiles to assure proper production phasing for complete weapon system. Reviews and determines feasibility of making configuration changes to production aircraft and missiles and time phasing the production of new models and configurations. Prepares data for use by the Director at Weapons Board and Air Force Council meetings. Responsible for the master urgency list and weapon systems phasing.

BRANCHES

BOMBARDMENT
FIGHTER
SUPPORT AIRCRAFT

**SUPPORTING SYSTEMS
AND EQUIPMENT DIVISION**

Exercises staff surveillance over the procurement and production of supporting systems, GFE, support equipment, electronics and communications equipment, and equipment procured for the Air Force by the Army and Navy. Serves as a focal point in DCS/Materiel to insure expedited and efficient execution of all air staff directed procurement actions to assure proper phasing of support equipment and electronics. Participates in the activities of the Electronics Production Resources Agency (EPRA) as they relate to Air Force interests. Participates in the Joint Department of Defense--Business Defense Services Administration Components Study Group Program. Monitors industrial demand requirements for support equipment and electronics. Provides staff supervision over Air Force procurement and production programs and serves as the air staff focal point for problems related to availability of critical or controlled contractor furnished components. Performs equipment production studies in coordination with the Aircraft Division. Serves as staff focal point on any action relating to issues of equipment procurement by the Air Force or procured by the Army or Navy for the Air Force.

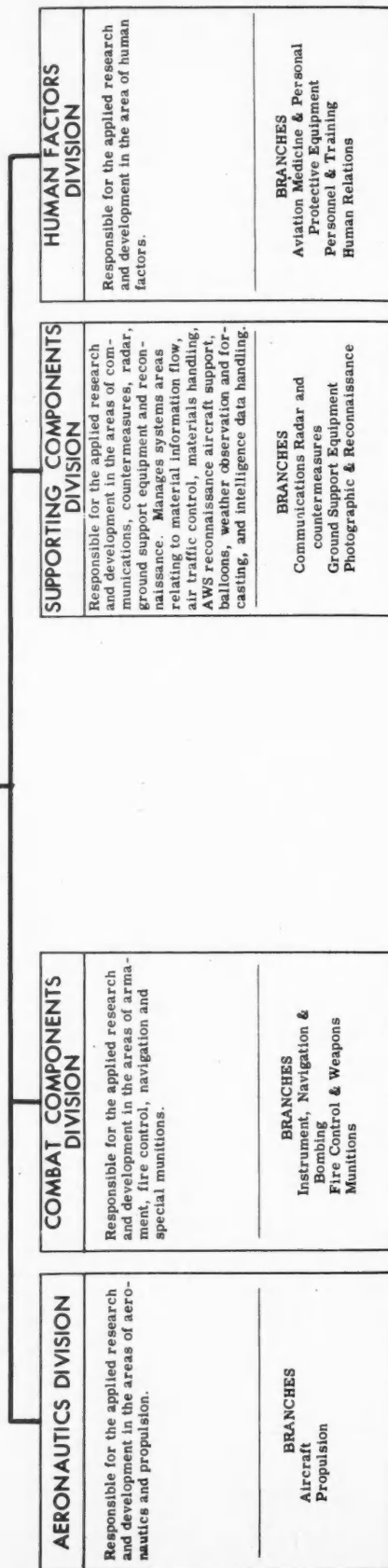
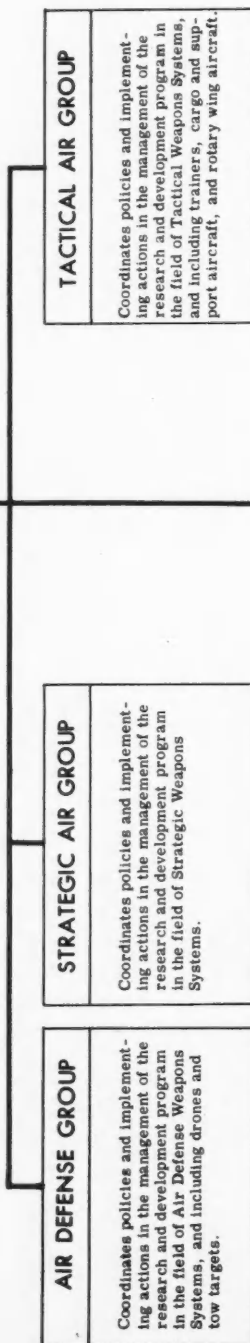
BRANCHES

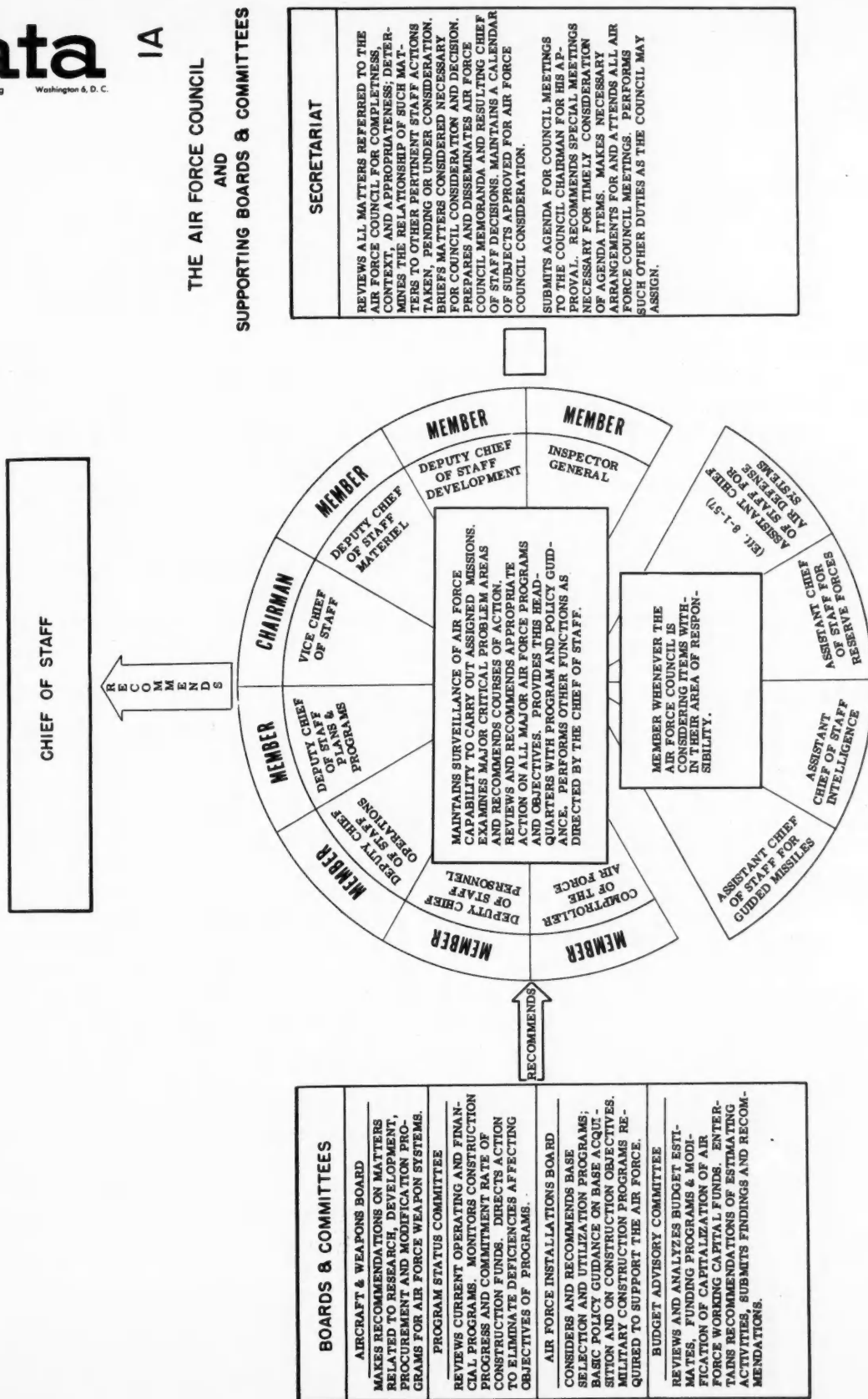
SUPPORT EQUIPMENT
ELECTRONICS

IIID **DIRECTOR OF** **RESEARCH AND DEVELOPMENT**



data
 Dupont Circle Building Washington 6, D. C.





TAX TIPS

Benjamin E. Becker, CPA
Data Publications

CONSTRUCTION & SERVICE CONTRACTORS

may find tax advantages in reporting income from long term contracts, after such contracts are completely finished. By forming a separate corporation to handle only long term contracts, permission to change over from current accounting methods need not be obtained.

TRANSPORTATION EXPENSES

are easier to handle now. Internal Revenue Service has relaxed requirements to furnish detailed transportation expenses. Those receiving transportation allowance can still submit detailed expenses where car depreciation, other car costs and additional transportation expenses exceed allowance. Excesses are still tax deductible.

SALESMEN

receiving back pay upon changing positions should explore back pay tax provisions. Results may well be considerable tax saving. Provisions in regs permit a spread back of earnings over several years, thus cutting top tax rate of current year.

BUSINESS FIRMS CAN SAVE TIME AND MONEY ON DEPRECIATION

write-offs if a little spade work is first done in affixing obsolescence. Take an abandonment loss or sell or exchange the assets to offset tax deficiencies from earlier years, plus take advantage of additional deductions in current year. This can eliminate much, if not all, of your additional cash disbursements for taxes during current year.

LIFE INSURANCE IN BUSINESS PLANNING

is a definite tax saving. Corporate officers planning their family futures should contemplate life insurance purchases as part of corporate responsibility. Their tax dollars can be saved. Group insurance for corporate employees and officers will provide insurance protection for otherwise uninsurable officers, make premiums tax deductible to the corporation, non-taxable to the officers.

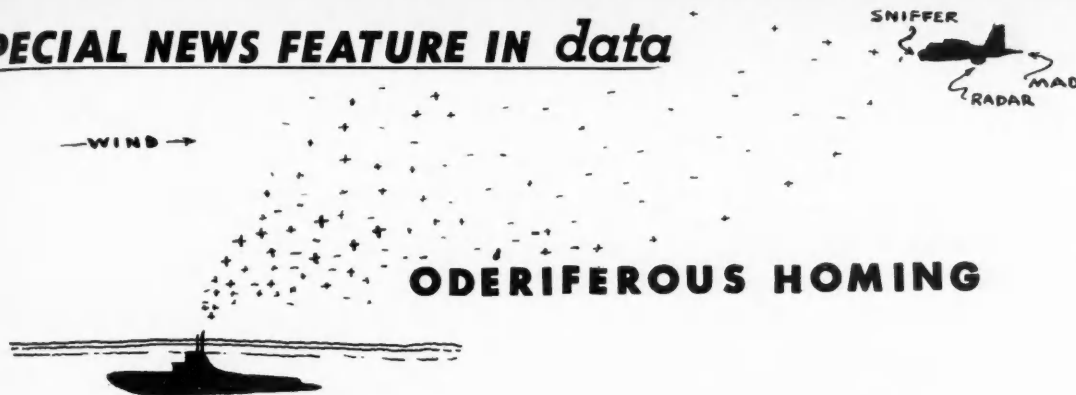
COMPENSATION TO OFFICERS BASED ON PROFITS

is entirely proper and tax deductible. Such compensation need only be reasonable and not excessive. Why be stuck with a high salary, fully taxable, while your corporation shows a net operating loss, or only a modest profit. It also makes your financial statement look bad.

OFFICERS OF A NEWLY FORMED CORPORATION

should keep in mind the fact that net operating losses are not always deductible. Such losses are deducted from profits.

SPECIAL NEWS FEATURE IN *data*



ODERIFEROUS HOMING

Revealed here for the first time is an announcement and explanation of the Navy's revolutionary new method of locating enemy submarines which has been in fleet use now for the past two years.

ODERIFEROUS HOMING, known as "Sniffer Gear" in the fleet, uses the contamination of the atmosphere above and downwind of a snorkeling submarine as a homing stimuli. Air is ionized by the exhaust gases emitted from the sub, and sensitive electronic equipment in the aircraft picks up the scent from many miles away.

Approaching the hidden submarine from downwind, the hunter-killer aircraft follows the chemical disturbance in the air to its more intensive location. When in the vicinity of the sub as determined by the Sniffer Gear, the aircraft may use any one or a combination of several other conventional means of sub detection such as searchlight, sonobuoys, or magnetic air detection (MAD) to pinpoint the target.

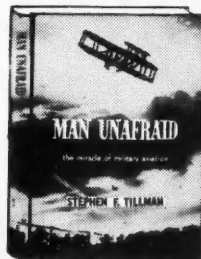
Although most of the submarines that we have to worry about right now are conventionally powered, the USSR will have within a relatively short time a sizeable number of nuclear subs that need not snorkel.

The Navy is therefore developing submarine locating devices analogous to the Sniffer Gear to locate nuclear subs. These ACTIVE WATER HOMING devices can measure the trail of radioactive sea water from the nuclear sub's passage rather than the air ionization.

With these new methods of sub detection what chance does the sub have of getting away? Still plenty. A high ranking officer in ASW (Anti-Submarine Warfare) has revealed that detection methods are still far behind the ability of the submarine to escape.

To escape ODERIFEROUS HOMING, the sub can release "smudge pot" decoys to fool the sensitive sniffer nose. Nuclear powered submarines can send out pellets of radioactive substances.

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by COL. STEPHEN F. TILLMAN

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AIR SPACE

GOODYEAR INFLATOPLANE in water ski configuration. Built under joint contract with Office of Naval Research and Army, **INFLATOPLANE** can be packaged in 44 cu. ft. container, is easily transportable, inflates in 10 minutes, flies at 70 mph. Internal pressure: 8 lbs/sq.in.



NORTH AMERICAN UNVEILS NAVY'S NEW A3J JET ATTACK A/C

at Port Columbus plant. A3J is first plane produced for Navy by NAA under Weapon System management concept. This concept, developed originally by AF's ARDC, makes prime (NAA) responsible for entire production including components. New plane will be ship based, is powered by two G-E J79-2 jet engines capable of attaining 24,000 lbs. of thrust.

///Pent OPI 0516/

SMALL CONTRACTORS GET \$267 MILLION

in ballistic missile work during 1957. Figures released show of \$1 billion paid to subcontractors engaged in ballistic missile work during 1957, more than \$267 million (26.7%) was paid to small biz concerns. Almost half of total funds spent on AF's ATLAS ICBM went to small biz.

///AIA 0509/

REPUBLIC DEVELOPS JET DRONE NAMED 'SWALLOW'

for Army. New delta-wing turbojet can carry television, infrared or photo equipment on surveillance missions. Contract for SWALLOW is valued at \$3 million.

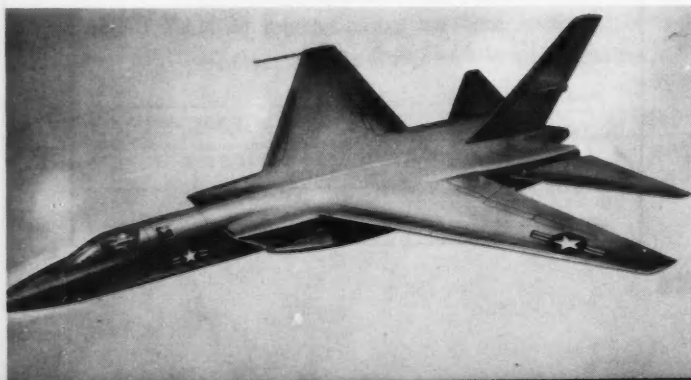
///Army Info 0519/

JEEP-MOUNTED GRID USED AS GCA UNIT

Steel wire grid mounted on jeep, developed by two men at Patrick AFB, is used to replace \$200,000 Ground Control Approach unit at Patrick for practice purposes. Horizontal and vertical wires mounted on grid frame enable operator to estimate distance airplane is above or below glide path and how far he is from touchdown. Using simple principle of grease-pencil dot on windshield and triangulation, pilot is talked in for perfect landing by operator.

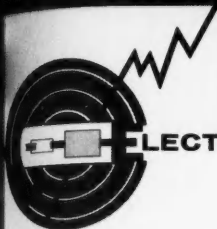
///Patrick AFB 0509/

NAVY A3J VIGILANTE

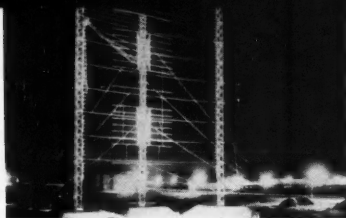


GCA UNIT SUBSTITUTE





ELECTRONICS COMMUNICATIONS



NEW SINGLE SIDEBAND ANTENNA, THULE AFB, GREENLAND

RADIO CONTROLLED LANDING VEHICLES

are being used by the Marines. Developed by Lear, new electronic guidance allows airborne helicopter pilot to control several LVTs (Landing Vehicle Tracked) while staying clear of ground fire. In this technique the 'copter pilot guides the amphibious vehicles by moving a steering stick similar to an aircraft control stick and by manipulating buttons and switches mounted on the panel. Helicopter "driver" can start and stop engines, steer, shift gears, brake and apply throttle. In short, he can operate vehicles almost as well as if he were seated at manual controls and he can see better.

///USMC Info 0514/

B-58 POD CAN CARRY MULTITUDE OF ELECTRONIC GEAR

Shown below is the B-58 central-carried weapon pod. As a housing for ECM (Electronics Counter Measures), pod can carry gear to fool enemy missiles of several different types of homing methods.

///AF Info 0519/

NAVY STUDYING FISH'S SUPER POWERS

to aid in development of better sonar. Navy officials are curious to know why certain types of fish are able to detect an enemy at great distances without being able to see him. Other types of fish, such as salmon, are able to go from headwaters thousands of miles into the ocean and then as long as seven years later come back to their point of origin. Answer to fish-story may result in new concepts in detection systems.

///ONR 0519/

NAVY CONTRACTS FOR FIRE CONTROL EQUIPMENT

awarded to Long Island, N. Y. companies. Largest contract, \$14 million, went to Ford Instrument for production of computers for TARTAR and TERRIER guided missile systems. Arma Division of American Bosch Arma received \$3,250,000 for torpedo fire control systems.

///Pent OPI 0519/

HELICOPTER GUIDED LANDING VEHICLES

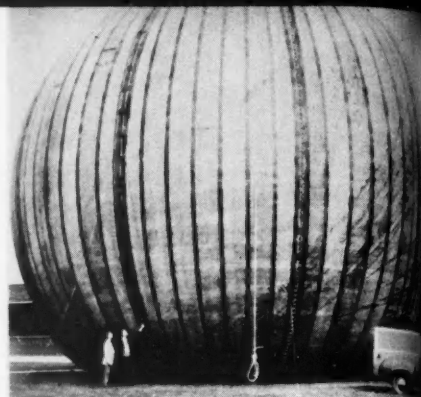


CLOSE-UP OF B-58 POD



ONSTRUCTION

NEW RADAR DOME: Giant beach ball is really the world's largest air-supported radome, developed by ARDC and Firestone of Canada. Used to protect radar antenna installations against adverse weather, radome measures 61 ft. in dia. (dwarfing two men and truck), yet is deflatable to easy size for handling.



ERDL DEVELOPS FLOATING BRIDGE

capable of supporting 60-ton loads. Complete bridge components can be air-transported and erected manually at speeds up to $1\frac{1}{2}$ feet per minute. Bridge construction consists of pneumatic half-floats and 16 feet long deck sections. Steel beams and plywood panels provide rigidity and distribute load to floats. Photos available. *///Army Ft. Belvoir 0527/*

FIRST TITAN LAUNCHING SITES TO BE IN DENVER AREA

AF has announced. Lowry Range on government owned land now used for bombing practice will be used for launchings. This site would enable AF to use Lowry AFB as support base while maintaining sites some distance from Denver. *(1) ///Pentagon OPI 0521/*

NAVY PLANS \$2 MILLION CONTROL CENTER ANNEX

for its Atlantic Fleet Headquarters at Norfolk, Virginia. New building, which will be windowless and completely airconditioned, is scheduled for completion in early 1960. *///LantFleet OPI 0526/*

CONGRESS ASKED FOR \$13 MILLION FOR ARMED FORCES STAFF COLLEGE

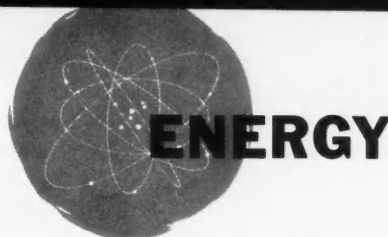
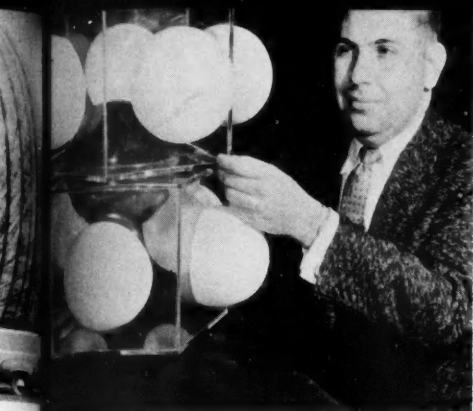
to be located at Norfolk, Virginia. Construction of college would take from six to eight years, and includes from 60 to 65 new buildings. *///Cong. 0513/*

INCREASE IN MISSILE SPENDING DUE TO BASES

not weapons, says Astronautics Magazine. Only three missile bases costing 100 million dollars apiece have been budgeted so far, and many more will be needed. AF forseees new supplemental appropriation from Congress this session if bases and ground handling equipment are to keep pace with weapon production. *///Astronautics Mag/*

PRESTRESSED PROCEEDINGS AVAILABLE

Proceedings of World Conference on Prestressed Concrete held in San Francisco last July have been published and are available for distribution. 600-page book contains 64 papers presented by delegates at Conferences, as well as many illustrations. Copies, at \$10 each, may be obtained by writing "World Conference on Prestressed Concrete, Inc.," Room 216, 417 Market St., San Francisco 5, California. *///CEC Bulletin/*



AIR FORCE GOES TO THE FAIR: Representing the ARDC's energy accomplishments, this model of a ferrocene molecule magnified one billion times is on display at Brussels World's Fair. USAF thinks this chemical molecule may be aid to better lubrication techniques for missiles, advanced aircraft.

NAVY OPENS HIGH ENERGY FUEL PLANT

near Niagara Falls. Built by Olin Mathieson Chemical Corporation, plant will produce liquid High Energy Fuels-2 (HEF-2), a mixture of boron, hydrogen, and other chemicals. Boron-based fuel will burn at higher altitudes than present jet fuels, permitting future planes and missiles to obtain increased performance. ///Pent OPI 0514/

AEC RECEIVES 15 PITCHES FOR FOOD IRRADIATOR

to be built at Sharpe General Depot, Lathrop, Calif. The 60 gamma food irradiator will be known as HI-FI (High Intensity Food Irradiator) and will be used by Army Quartermaster in connection with its food preservation project at Sharpe General Depot. Proposals for construction are being reviewed and award of contract is scheduled for next July. Work is expected to be completed on the facility by mid-1960. ///AEC 0527/

TOP POWER FOR ANTIMISSILE RADAR

Special microwave generator, capable of 21 million watt power peak, has been developed by Cornell Aeronautical Laboratory under an Army Ordnance research contract. New generator is expected to be especially useful in new radar equipment designed to detect ICBMs. ///AFPS 0516/

SAC TO CONVERT ALL PLANES TO SSB

for more rapid, reliable and positive communications over long distances. Single Side Band high frequency communications system is already in use by some special mission aircraft of the AF, including the Presidential plane. Modifications on SAC aircraft will include B-52, B-47, KC-135 and KC-97 planes. About \$3,500,000 has been allocated for the first 900 conversions. ///Pent OPI 0529/

\$100 MILLION ANNUAL NAVY FUEL BILL CAN BE CUT 10 PER CENT

by improving endurance factor of ships, says Maurice R. Hauschildt, of BuShips Design Division. In a paper entitled "Considerations Affecting The Design Endurance of Naval Ships," Hauschildt points out that endurance can be improved not only by designers and builders, but by operating forces as well. Paper covers subject of endurance in general terms, yet points out specific areas where improvements can be made by designer, builder and operator. ///BuShips JRNL 04-2/

LOGISTICS MATERIALS

SIDE OF BACON EXCELLENT PLUG FOR LEAKING SHIPS

says Dutch shipping company's spokesman after one of his company's vessels was prevented from sinking through the use of bacon. The 100-ton Dutch ship "ZUIDERZEE" sprang a leak in her hull after a collision, and her captain plugged the leak with a four-pound side of bacon. The bacon prevented vessel from going down, and lasted well enough to allow ship to be taken to repair yard. "Bacon is ideal for plugging holes in ship's hulls, because it clamps tight through suction," said the ship's owner.

797 (1) ///Am Merchant Marine Inst/

CORPS TESTING DOMES FOR PLANE REPAIR FACILITIES

at Cherry Point, N. C. Made of aluminum and nylon, dome, which is 57 feet in diameter and 28½ feet high, can withstand temperatures ranging from 65° below zero to 170° above. Weighing a total of 2235 pounds, dome comes in four packages and requires only wrenches and a sledge hammer to erect in about 30-man-hours. If tests are successful, dome structure can solve problem faced by crews working outdoors in summer when showers or rainy days suspend work.

///Navy Times 0426-30/

NEW PROCEDURE ESTABLISHED FOR QUALIFYING CLOTHING MAKERS

by Army. Under new set-up, only those bidders who qualify under established standards will be placed on Qualified Manufacturers List, and only those firms which appear on such lists will be permitted to submit bids. In order to qualify for placement on lists, applicants will be required to complete a "Qualification Questionnaire," which is designed to indicate that applicant can meet certain prescribed standards as to manufacturing capabilities, technical know-how, quality of production, performance record, business integrity, financial responsibility, facilities, trained labor force and quality control systems. Appropriate lists will be established for each category of items. Any firm desiring to qualify may request applications from Executive Director, Military Clothing and Textile Supply Agency, 2800 South 20th Street, Philadelphia, Pennsylvania.

(1) ///Pentagon OPI 0521/

STRATEGIC ARMY CORPS ORGANIZED

to deal speedily with limited wars. Made-up of airborne and infantry divisions, STRAC is Army's mobile combat ready force designed to meet initial requirements of limited war or to provide initial reinforcements in a general war.

(2) ///Pentagon OPI 0520/

AEROJET-GENERAL DEVELOPS NEW LOX TRANSFER PUMP

capable of transferring liquid oxygen in capacities up to 1,500 gallons per minute. High rate of transfer is achieved by de-rating missile turbine-driven pumps to conventional electric-motor speed. Light weight.

///Aerojet Booster 0501/



AIRCRAFT DETECTION HELMET, developed by ARDC for Ground Observer Corps, could be fashionable chapeau for milady. Unit detects radiations of airborne radar within range of 100 miles.///ARDC/

VEST BATTERY warmer to keep dry cell batteries efficient is being developed at Army SigCor R&D Labs, Ft. Monmouth, N.J. Vest uses wearer's body heat to keep harmful cold and freezing moisture from batteries.///SigCor/



ROUGHNECK 'ONTOS,' Marine Corps tank killer vehicles, can go anywhere to hunt their prey. With 106-mm rifles carefully covered against ravages of salt water spray, column of ONTOS (the "thing" in Greek) enters surf at Camp Pendleton, Calif.

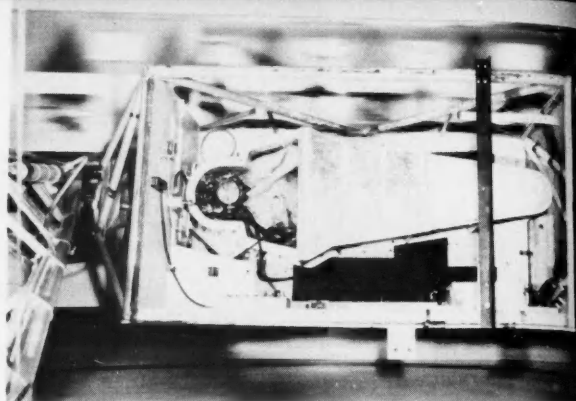


PAPERBOARD HONEYCOMB BUFFER, developed by Army Quartermaster R&D, soaks up shock when heavy equipment is airdropped. New system, now under test, is much lighter, costs one-tenth as much as present shock-absorbing materials. Note parachutes on back of vehicle. ///Quartermaster/



MAJ. GEN. D. H. TULLEY, C.O., Ft. Belvoir, receives his copy of DATA's special Ft. Belvoir edition from Curtis Prins, DATA associate editor. Col. A. H. Davidson, Director of Army Engineer R&D Labs at Belvoir, looks on.

OVERCOMING SPACE PRESSURE: Volunteer from Aero Medical Lab at Wright Air Development Center rides under water in tests to solve expected launching and re-entry problems of manned space flight. ARDC tests showed complete mobility under water, a tolerance twice that out of water.



ULTRASONIC SURGERY NOW BEING USED ON HUMANS

for treatment of Parkinson's disease. Successful operations have been performed by Dr. William J. Fry at Iowa City University Hospital. Operation consists of destroying, by means of irradiation, a tiny nerve tract at base of brain.

///ONR Research/

TOOTHACHES COMMON, CURE FOUND IN ANTARCTICA

Toothaches were a complaint of 98 percent of the men in McMurdo Sound Wintering-Over party. In a report just released by Navy, it was revealed that most common cause of toothache was inhaling cold air on teeth with metal fillings. Some painful teeth required extraction, but in most cases pain could be relieved by removing filling and putting an insulating base beneath filling.

///Navy Times/

PAINLESS DENTAL INJECTIONS SEEN FOR SOLDIERS OF FUTURE

through new anesthesia jet injector device. Six-inch long injector shoots liquid into tissues at speed of about 700 ft/sec. In addition to removal of pain from operation, new method of anesthetizing eliminates hazards of needle fracture during injection and reduces danger of transmitting infections. Main disadvantage of new jet injection is that it causes some bleeding.

///Pent OPI 0515/

SERVICES GET NEW BLOOD TRANSFUSION EQUIPMENT

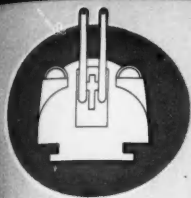
and shipping container. Made of plastic, new transfusion apparatus weighs about 51 pounds, can hold 144 pints. Old equip for same amount of blood weighed 225 pounds. Plastic containers are disposable, save money in handling, cleaning and transportation costs. Initial savings to Government were \$725,000. Equipment developed by Medical Development Equipment, Fort Totten, N. Y.

///Army Med Cor/

SPACE-FLIGHT PROTECTION TESTS

at AF's Wright Air Development Center, Dayton, learned that a man immersed in water can withstand acceleration ("g") forces much higher than a man protected with today's conventional equipment. Scientists reasoned that if putting a man in water decreases his weight (Archimedes principle) multiplication of that decreased weight might be below his normal weight and not affect him as much. It works.

///ARDC 0501/



ORDNANCE



ARMY'S NEW CARGO TRACTOR

THE M8E2 is used to tow heavy artillery, transport personnel, cargo, or ammunition over all types of terrain. It can go up a 60% grade, pivots in place, and can hit 40 mph on straightaways. It grosses 39,000 lbs.

U. S. BUYS FRENCH ANTI-TANK MISSILE

for use by Seventh Army in Germany. French NORD SS-10 is small tailless aircraft with cruciform wings, canted to give stabilizing spin. Powered by tandem solid rockets with concentric nozzles, missile is 34 inches long, weighs 33 lbs. Span: 30 inches. *///Astronautics/*

NAVY BETTY DEPTH CHARGE

with nuclear warhead has joined fleet. BETTY is airdropped when contact is made, but false contact will prove costly as each charge is a \$1 million weapon. *///Navy Info/*

NAVY REPORTED USING MOON REFLECTIONS

to extend communications. R/Adm. H. Bruton, director of Naval Communications, revealed new development in speech before Armed Force Communications-Electronics Association. *///Navy Info/*

PAINT TESTING AT NORFOLK

is being taught as a class to Inspectors of Naval Material. Navy has been making special paints, will now rely on independent manufacturers and must clue in inspectors. At least five plastic shipbottom paints have never been obtained from commercial sources. *///BuSandA/*

data 27

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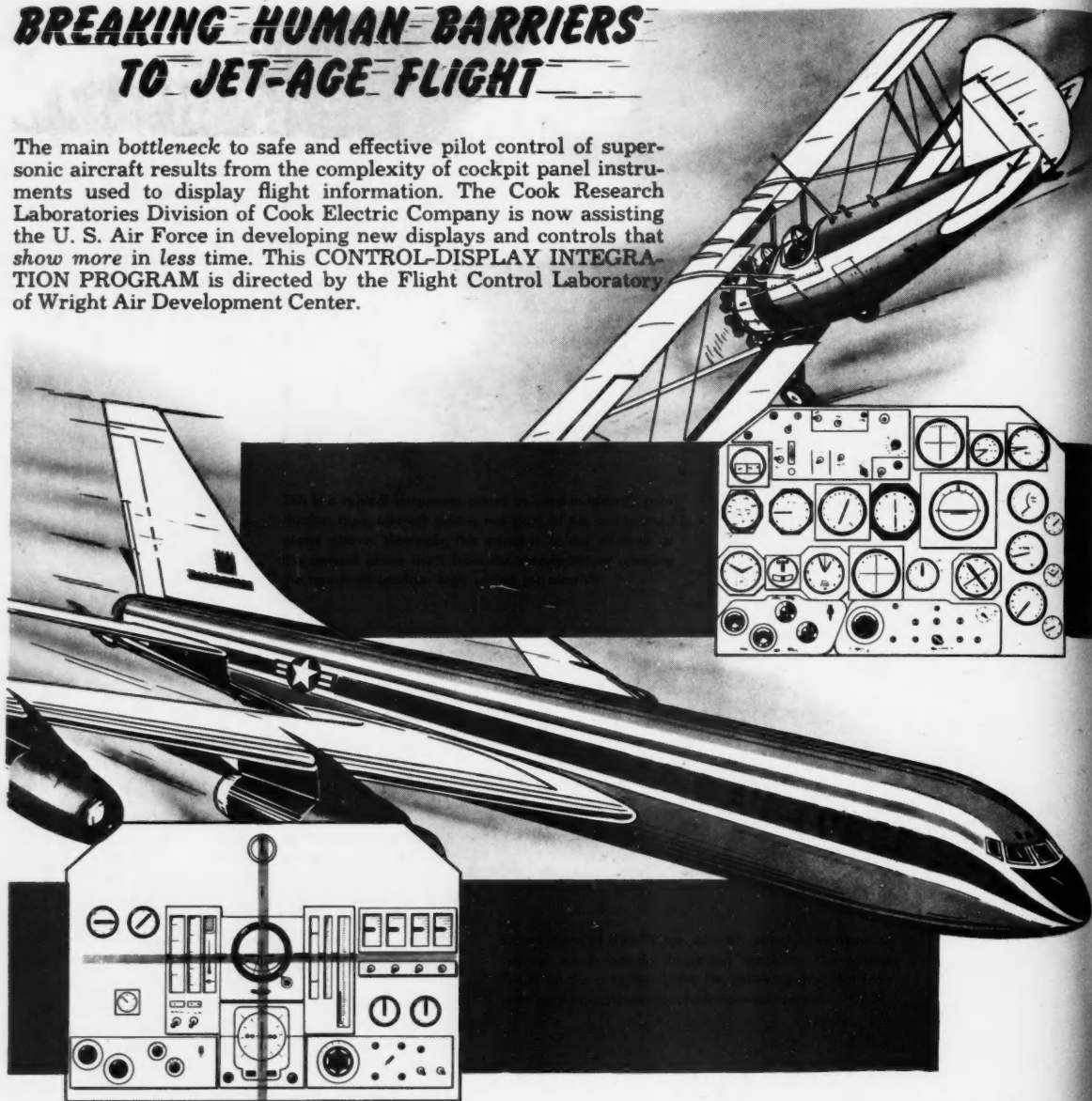
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